

GUIDELINE	PERFORMANCE	EXCEPTIONS & DEVIATIONS
<p>1. Lockout/Tagout Use</p> <ul style="list-style-type: none"> Definitions <u>Lockout</u> is the placement of a lock to render a device inoperable. <u>Tagout</u> is the application of a warning device on a control indicating the control must not be used when the tag is removed by authorized persons. Use of keys should be controlled. 	<p>1. Lockout/Tagout Use</p> <ul style="list-style-type: none"> BNL ES&H Standard 1.5.1 "Lockout/Tagout Requirements" provides lab-wide definitions for use of Lockout and Tagout devices. CAD procedures comply with this BNL Standard. Lockout at CAD is the placement of a lock to render a device inoperable. Tagout at AGS is the application of a warning device on a control. Lockout keys are controlled. OPM 2.6, 2.6.1, 2.6.2, 2.6.3, 2.6.4, 2.6.5, 2.6.6, 2.6.8 and 9.1.16 are CAD procedures that provide lockout and tagout instructions for specific systems. OPM 10023 defines the lockout/tagout process at the TVDG. 	<p>1. Lockout/Tagout Use</p> <ul style="list-style-type: none"> None
<p>2. Lockout and Tagout Implementation</p> <ul style="list-style-type: none"> If an isolating device can be locked out, it should be. If an isolating device can not be locked out, it should be tagged out. If major modifications to equipment are made, the addition of lock out capability should be considered. The following are example administrative controls: <ul style="list-style-type: none"> Generate a list of devices that must be locked out Establish criteria for locking out Control the distribution of and access to keys Specify techniques for verifying the position of locked components Document when the position of normally locked component is changed Perform periodic checks of locked 	<p>2. Lockout and Tagout Implementation</p> <ul style="list-style-type: none"> The CAD uses locks wherever locks can possibly be applied, or where locks can be retrofitted for the purpose of isolating devices. Tagouts are used at CAD. New installations are fitted with lockouts, and retrofitting is occurring (see OPM 9.3.1) The AGS uses the following administrative controls: <ul style="list-style-type: none"> lists of devices that must be locked out (see, for example, OPM 2.6.2, "Partial Lockout/Tagout for the AGS and Booster Rings During Accelerator Operations Under Controlled Access and TVDG OPM 10006, 11DH02 Lock Tagout Form.) written criteria for lockout (see, for example, OPM 9.1.16 Lockout / Tagout for Radiation Safety) controls for the distribution and access of keys (see OPM 1.5, "Electrical Safety Implementation Plan") specific acceptable techniques for verifying the position of locked components are given in OPM 1.5 documentation is associated with specific lockout and tagout procedures (see, for example, OPM 2.6.2, "Partial Lockout/Tagout for the AGS and Booster Rings During Accelerator Operations Under Controlled Access and TVDG OPM 10006, 11DH02 Lock Tagout Form.) the requirements for periodic checks are given in OPM 1.5 	<p>2. Lockout and Tagout Implementation</p> <ul style="list-style-type: none"> None

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components		
<p>3. Protective Materials and Hardware</p> <ul style="list-style-type: none"> Includes locks, tags, and chains. Lockout and Tagout devices should be singularly identified, and meet the following requirements: <ul style="list-style-type: none"> Able to withstanding the environment in which they are installed. Standardized in size, shape, or color Substantial enough to prevent removal (50# pull minimum) Carry the name of the person applying the device Carry a "Warning" notice 	<p>3. Protective Materials and Hardware</p> <ul style="list-style-type: none"> LOTO materials include standardized locks and tags (See BNL ES&H Standard 1.5.1) Locks and tags are singularly identified, and at CAD they meet the following requirements: <ul style="list-style-type: none"> Able to withstanding the environment in which they are installed. Standardized in size, shape, or color Substantial enough to prevent removal (50# pull minimum) Carry the name of the person applying the device Carry a "Warning" notice 	<p>3. Protective Materials and Hardware</p> <ul style="list-style-type: none"> None.
<p>4. Lockout/Tagout Program</p> <ul style="list-style-type: none"> Establish procedures for the program. 	<p>4. Lockout/Tagout Program</p> <ul style="list-style-type: none"> BNL ES&H Standard 1.5.1 "Lockout/Tagout Requirements" establishes the BNL Lockout/Tagout program requirements for all Departments and Divisions. OPM 1.5 and OPM 10023 are procedures used by CAD for Lockout / Tagout of specific systems. 	<p>4. Lockout/Tagout Program</p> <ul style="list-style-type: none"> None.
<p>5. Procedures for Lockout/Tagout</p> <p>a. Procedures should include, but are not limited to following:</p> <ul style="list-style-type: none"> Statement of intended use Specific steps for placing, removing and transferring of tags and locks Testing requirements to verify the isolation of the energy source <p>b. Specific procedures are not required when all the following requirements are:</p> <ul style="list-style-type: none"> Machine has no stored energy after shutdown Machine has a single, easily identifiable energy source Isolation of the source will completely de-energize the machine 	<p>5. Procedures for Lockout/Tagout</p> <p>a. CAD LOTO-specific procedures include:</p> <ul style="list-style-type: none"> Statement of intended use Specific steps for placing, removing and transferring of tags and locks Testing requirements to verify the isolation of the energy source <p>b. Personnel applying LOTO not covered by a specific CAD procedure follow rules in BNL ES&H Standard 1.5.1 "Lockout/Tagout Requirements."</p>	<p>5. Procedures for Lockout/Tagout</p> <ul style="list-style-type: none"> None.

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<ul style="list-style-type: none"> Machine is isolated from the energy source and locked out A single lockout device only is required Lockout is under the exclusive control of authorized personnel Servicing does not create a hazard to other personnel Employer has a good accident record on the use of Lockout/Tagout <p>c. Documentation of Lockout/Tagout Usage should be documented and periodically reviewed.</p>	<p>c. Documentation of lockouts and tagouts is via LOTO logbooks which are periodically reviewed by supervisors (see OPM 1.7).</p>	
<p>6. Application of Lockout/Tagout The program should cover the following procedures:</p> <ol style="list-style-type: none"> Preparation for Shutdown Inform affected personnel of hazards and of controls to be used. Machine or Equipment Shutdown Use established procedures. Equipment Isolation Apply the lockout or tagout device. Affixing Locks/Tags Securely affix tags with qualified personnel. Stored Energy Render safe any stored energy and prevent any re-accumulation. Verification of Isolation Before starting work, verify isolation of the device. Release from Lockout/Tagout Before restoring equipment, perform the following: <ol style="list-style-type: none"> Equipment/Workspace <ul style="list-style-type: none"> Machine or equipment is operationally intact Inspect area and remove non essential items Person removing the tag/lock should assure that the equipment is properly 	<p>6. Application of Lockout/Tagout The AGS staff</p> <ol style="list-style-type: none"> have meetings to inform personnel of hazards and controls to be used in a shutdown (OPM 2.28.a) have shutdown procedures (OPM 5.29, OPM 8.12.6) have specific LOTO procedures to isolate devices (see Item 1 above) are trained to use qualified personnel to affix tags (OPM 1.5) are trained to render safe stored energy and prevents re-accumulation (OPM 1.5) are trained to verify isolation of devices before work begins (OPM 1.5) <p>g. before restoring equipment (see Electrical Safety Training and OPM 1.5):</p> <ol style="list-style-type: none"> Equipment/Workspace <ul style="list-style-type: none"> are trained to ensure the machine or equipment is operationally intact are trained to inspect area and remove non essential items are trained to assure that the equipment is properly aligned. 	<p>6. Application of Lockout/Tagout</p> <ul style="list-style-type: none"> None.

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<p>aligned.</p> <p>(2) Personnel</p> <ul style="list-style-type: none"> • Check that affected personnel are safe and are informed of energization. <p>(3) Lockout/Tagout Device Removal</p> <ul style="list-style-type: none"> • The person who applied the isolation device shall be the one to remove it. • Document removal of tag via logbook of other methods. • Procedures for removal by a person other than who placed the device: <ul style="list-style-type: none"> • Verify that the person who placed device is not available. • Make reasonable efforts to inform the person who placed the device that it has been removed. • Ensure that the affected personnel are informed 	<p>(2) Personnel</p> <ul style="list-style-type: none"> • are trained to Check that affected personnel are safe and are informed of energization. <p>(3) Lockout/Tagout Device Removal</p> <ul style="list-style-type: none"> • are trained such that the person who applied the isolation device is to be the one to remove it. • are trained to document removal of tag via logbook • have procedures for removal by a person other than who placed the device: <ul style="list-style-type: none"> • are trained to verify that the person who placed device is not available. • are trained to make reasonable efforts to inform the person who placed the device that it has been removed. • are trained to ensure that the affected personnel are informed 	
<p>7. Testing or Positioning of Equipment or Components</p> <p>When a temporary removal is required:</p> <ul style="list-style-type: none"> • Clear the equipment of tools and materials • Ensure that personnel leave from the area • Remove the lockout/tagout device • Perform testing to assure lockout • De-energize and reapply the lockout/tagout device 	<p>7. Testing or Positioning of Equipment or Components</p> <p>For testing or positioning of equipment or components, the specific procedure steps would include the following where appropriate:</p> <ul style="list-style-type: none"> • Clear the equipment of tools and materials • Ensure that personnel leave from the area • Remove the lockout/tagout device • Perform testing to assure lockout • De-energize and reapply the lockout/tagout device 	<p>7. Testing or Positioning of Equipment or Components</p> <ul style="list-style-type: none"> • None.

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<p>8. Periodic Inspections</p> <ul style="list-style-type: none"> Perform audit for compliance with program. 	<p>8. Periodic Inspections</p> <ul style="list-style-type: none"> CAD performs self-assessments and audits (see OPM 1.7, OPM 9.4.1, OPM 9.4.2) and periodically "Conduct of Operations" is chosen for review. Additionally, the CAD QA Office performs routine audits of formal programs (see QAP 901). At TVDG, logbooks are reviewed monthly by the TVDG ES&H Coordinator or designee. 	<p>8. Periodic Inspections</p> <ul style="list-style-type: none"> None.
<p>9. Caution Tags</p> <ul style="list-style-type: none"> Do not use for personnel protection Tags should show: <ul style="list-style-type: none"> Tag identification system Information on any precautions Signature of person applying the tag Keep records of use Apply so that the tag does not interfere with operation of equipment. 	<p>9. Caution Tags</p> <p>The use of Do Not Operate Tags (caution tags) is described in OPM 2.13 "Do Not Operate Tags:"</p> <ul style="list-style-type: none"> they are not used for personnel protection tags show: <ul style="list-style-type: none"> tag identification system information on any precautions signature of person applying the tag records of use are kept the tag does not interfere with operation of equipment. 	<p>10. Caution Tags</p> <ul style="list-style-type: none"> None.
<p>10. Training and Communication</p> <p>a. Training should include:</p> <ul style="list-style-type: none"> Recognition of hazards Purpose of procedures Recognition of the Tagout/Lockout devices <p>b. Training on limitations of tags</p> <ul style="list-style-type: none"> Tags are warning device only, with no physical protection. Tags should be removed by the person who applied them. Tags must be legible. Tags must withstand environment. Tags must be securely attached. <p>c. Training on limitation of locks</p> <p>Locks may hinder facility systems necessary for safety.</p> <p>d. Retraining</p>	<p>10. Training and Communication</p> <p>a. LOTO, Electrical Safety, AGS and TVDG specific training includes:</p> <ul style="list-style-type: none"> recognition of hazards purpose of procedures recognition of the Tagout/Lockout devices <p>b. personnel are trained on the following limitations on tags (see Electrical Safety Training)</p> <ul style="list-style-type: none"> tags are warning device only, with no physical protection tags shall be removed by the person who applied them tags must be legible tags must withstand environment tags must be securely attached <p>c. personnel are trained that locks may hinder facility systems necessary for safety.</p> <p>d. CAD requires specific LOTO training for CAD equipment. Following</p>	<p>10. Training and Communication</p>

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Provide when there is a change in job, equipment, or hazard.	initial training, individuals are retrained annually to LOTO specific devices.	
11. Lockout or Tagout Implementation <ul style="list-style-type: none"> Implementation shall be by authorized, qualified personnel only. 	11. Lockout or Tagout Implementation <ul style="list-style-type: none"> Trained and qualified personnel are listed in BTMS. 	11. Lockout or Tagout Implementation <ul style="list-style-type: none"> None.
12. Notification of Personnel <ul style="list-style-type: none"> Notify appropriate supervisors or other personnel when lockout/tagout devices are applied or removed. 	12. Notification of Personnel <ul style="list-style-type: none"> BNL ES&H Standard 1.5.1 "Lockout/Tagout Requirements" establishes generic notification requirements. CAD and TVDG procedures establish specific notification requirements. 	12. Notification of Personnel <ul style="list-style-type: none"> None.
13. Outside Contractors <ul style="list-style-type: none"> Plant and contractor personnel should inform each other of their requirements. 	13. Outside Contractors <ul style="list-style-type: none"> BNL ES&H Standard 1.5.1 "Lockout/Tagout Requirements" establishes the responsibilities of visitors and contract employees not under CAD supervision. Outside Departments working at CAD are subject to requirements in OPM 1.11 "BNL Department/Division Requirements for Interaction With CAD." Outside contractors under CAD supervision working at CAD are subject to requirements in CAD OPM 1.12.1 "Training for Contractor Employees Overseen by the CAD Department." 	13. Outside Contractors <ul style="list-style-type: none"> None.
14. Group Lockouts <ul style="list-style-type: none"> Procedures must be developed for crews equivalent to procedures for personnel Lockout/Tagout. 	14. Group Lockouts <ul style="list-style-type: none"> BNL ES&H Standard 1.5.1 "Lockout/Tagout Requirements" establishes generic group lockout requirements. CAD procedures OPM 2.6, 2.6.1, 2.6.2, 2.6.3, 2.6.4, 2.6.5, 2.6.6, 2.6.8 and 9.1.16 are used at CAD. TVDG procedures TVDG OPM 10006, 11DH02 and OPM 10023 are used at the TVDG. 	14. Group Lockouts <ul style="list-style-type: none"> None.
15. Shift or Personnel Changes <ul style="list-style-type: none"> Procedures should be developed to assure the continuity of Lockout/Tagout protection between personnel or shifts. 	15. Shift or Personnel Changes <ul style="list-style-type: none"> BNL ES&H Standard 1.5.1 "Lockout/Tagout Requirements" establishes generic shift and personnel change procedures for lockout/tagout. These requirements are covered in CAD and TVDG procedures. 	15. Shift or Personnel Changes <ul style="list-style-type: none"> None.